

Applicants respectfully submit that the claims are allowable for at least the following reasons.

Claim 1 as amended is directed to an apparatus for measuring a property of a structure. The apparatus includes a microchip laser that generates an optical pulse, a diffractive element that receives the optical pulse and diffracts it to generate at least two excitation pulses and an optical system that receives at least two optical pulses and spatially and temporally overlaps them on or in the structure to form an excitation pattern that launches an acoustic wave, electronic response, or thermal response that modulates at least a portion of the structure. The apparatus also includes a light source that produces a probe beam that reflects off the portion of the structure to generate a signal beam, an optical detection system that receives the signal beam and in response generates a light-induced electrical signal, and an analyzer that analyzes the light-induced electrical signal to measure the property of the structure.

As described on page 8, line 30, to page 9, line 23, Applicants have discovered that the use of a small-scale microchip laser, as recited in Claim 1, yields significant advantages over conventional systems. In particular, the microchip laser minimizes spatial fluctuations of the grating which increases the quality of the measured data. In addition, because of its small size, the microchip laser is heated uniformly during the pumping process so that it requires only air cooling. These factors significantly reduce the amount of

pointing instabilities found in conventional larger lasers. This results in a very stable beam that reduces and/or eliminates spatial jitter.

Accurate measurements are made by fixing the phase of the excitation pattern (see element 15 in Fig. 4) relative to the probing area so that spatial jitter between these components is minimized. As discussed above, this is accomplished by the apparatus defined by Claim 1, in part, by the use of the microchip laser.

Nothing has been found in Rogers-I (claims or specification) or Rogers-II that teaches or suggests the microchip laser recited in Claim 1. While various types of lasers may be disclosed in Rogers-II (e.g., col. 15, lines 55-66 and col. 20, lines 17-19), nothing found therein mentions or even recognizes the advantages of the microchip laser as disclosed in the present application.

Accordingly, at least for this reason, Claim 1 is believed patentable over Claims 1-8 and 25 of Rogers-I and Rogers-II.

Independent Claims 35, 45 and 46 also recite a microchip laser, similar to Claim 1, and are believed patentable for at least the same reasons.

A review of the other art of record, including Nelson et al., has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as a reference against the rejected independent claims. Those claims are therefore believed patentable over the art of record.

The other rejected claims in this application are each dependent from one or another of the independent claims discussed

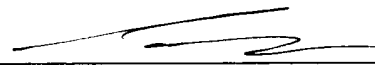
above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

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Respectfully submitted,

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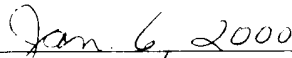
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